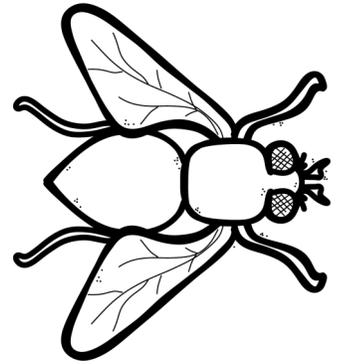


Classification of Living Things

In this unit, we're going to talk about how scientists **classify**, or group, living things. Before we start, let's talk about what it means to be alive. If you look around, it's easy to know what is alive and what isn't. The chair, the walls, and the books are not alive. The people, the flower in the window, and the fly buzzing around the room are alive. **Living things** grow and reproduce. They use energy and respond to their surroundings. Nonliving things cannot do any of these things.



Living things also share many of the same needs. Most need food or energy, water, air, and a safe place to live. In order to study living things, scientists have developed a way to classify them into groups. The science of studying living things is called **biology**. Biology includes two fields of study. **Zoology** studies animals, and **botany** studies plants. The science of classifying organisms is called **taxonomy**.

Not all scientists agree on exactly how each level of classification should be defined, but we'll look at one of the most common ways to define them. At the very top of this classification system are three domains—Archaea, Bacteria, and Eukaryota. Domains weren't used as part of scientific classification until the very end of the twentieth century. Animals and plants are all a part of domain Eukaryota.



The next level is where many of the classification charts that you see start—the kingdoms. Scientists recognize five kingdoms: Animalia, Plantae, Fungi, Protista, and Monera. Some scientists, however, recognize a sixth kingdom because they separate archaea out of kingdom Monera and make kingdom Archaea. We're going to focus on kingdom Animalia and kingdom Plantae. As we move through the classification chart, we're going to work our way down through the levels until we reach a level of classification that is unique to just one kind of animal. That will also give us the animal's scientific name.

We'll start with kingdom Animalia. Animals all have certain characteristics in common with each other that make them different from plants or the organisms in other kingdoms. For example, animals are made of many, many cells and can move around. Plants are made of many cells, but they generally cannot move on their own. Let's classify a tiger. We know the tiger is part of kingdom Animalia.

Kingdom	Animalia	
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The next level of classification is phylum. Some phyla (which means more than one phylum) are for **invertebrates**, animals without backbones, including cnidaria (like jellyfish), echinoderms (such as starfish), mollusks (including clams), and arthropods (which includes insects). Chordata is another phylum, and it is for **vertebrates**, animals with backbones. The tiger has a backbone, so its phylum is Chordata.

Kingdom	Animalia	
Phylum	Chordata	

To break phylum Chordata down, we move into the next level of the classification system called a class. There are several classes for fish. There is also a class for amphibians called Amphibia, one for reptiles called Reptilia, one for birds called Aves, and one for mammals called Mammalia. **Fish** are mostly cold-blooded and breathe mainly through gills. **Amphibians** are cold-blooded, do not have scales, usually hatch from eggs, and generally spend part of their lives in the water and part of their lives on land. **Reptiles** are cold-blooded, have scaly skin, and breathe with lungs. **Birds** are warm-blooded, have wings and feathers, and hatch from eggs. **Mammals** are warm-blooded, have babies instead of laying eggs, feed their young with milk from the mother, and have hair. Looking at the tiger, it's clear that it is a mammal, putting it in the class Mammalia.

Terminology

Using what you learned, define these words in the best way you can. Use the back of the page if you need more room.

Classify: _____

Living things: _____

Biology: _____

Zoology: _____

Botany: _____

Taxonomy: _____

Invertebrates: _____

Vertebrates: _____

Fish: _____

Amphibians: _____

Reptiles: _____

Birds: _____

Mammals: _____

Review

What are the 8 levels of scientific classification? Include both terms for the level that goes by a different name in the animal and plant kingdoms.

A vertical flowchart template for listing the 8 levels of scientific classification. It consists of eight rectangular boxes connected by arrows pointing downwards. A large 'SAMPLE' watermark is overlaid diagonally across the boxes.

Which of the following animals is not part of phylum Cordata? Draw an X through it.



Jellyfish



Giraffe



Flamingo

Which order do the following animals belong to? Draw a circle around it.



Sirenia

Carnivora

Lagomorph

Which division do flowering plants that grow seeds inside the plant belong to? Draw a circle around it.



Coniferophyta

Magnoliophyta

Which two levels of classification give us the living thing's scientific name?

Genus and species